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## Creation of a web site to provide technical support and training

Ricky Lee Hrdlicka

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CREATION OF A WEB SITE TO  
PROVIDE TECHNICAL SUPPORT AND TRAINING

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A Project  
Presented to the  
Faculty of  
California State University,  
San Bernardino

---

In Partial Fulfillment  
of the Requirements for the Degree  
Master of Arts  
in  
Education:  
Instructional Technology

---

by  
Ricky Lee Hrdlicka

March 2007

CREATION OF A WEB SITE TO  
PROVIDE TECHNICAL SUPPORT AND TRAINING

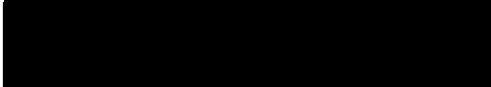
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A Project  
Presented to the  
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by  
Ricky Lee Hrdlicka  
March 2007

Approved by:

  
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*Feb/12/07*  
Date

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## ABSTRACT

The project, presented in this paper, developed a web-based tool that provides training and technical support in the use of computers to employees at San Bernardino Community College District (SBCCD). First, literature for training, technical support, design theory, developmental models, and web based resources are explored. Then, the ADDIE (analysis, design, development, implementation, and evaluation) model, of instructional design is used to create an effective resource. A survey of the employees at SBCCD shows that employees are willing to try new methods for receiving computer training and technical support. The tool is developed as a jump off point for further development within the site. The goal is to create one central location for training in computer use and technical support for employees that will pique the interest of management, technical support and training staff. With interest these entities will further support and develop the web site.

## ACKNOWLEDGMENTS

To all of my family, friends, and colleagues that have supported me and encouraged me thank you.

WORKLIFE  
FINE PAPERS  
100% COTTON

## DEDICATION

This is dedicated to my father Harold Hrdlicka. I miss you and think of you always. Dad without your guidance and support throughout my life this would not have been possible. I have learned from you, never to say CAN'T.

## TABLE OF CONTENTS

ABSTRACT .....	iii
ACKNOWLEDGMENTS .....	iv
LIST OF FIGURES .....	vii
CHAPTER ONE: BACKGROUND	
Introduction .....	1
Statement of the Problem .....	1
Purpose of the Project .....	3
Significance of the Project .....	3
Limitations .....	4
Definition of Terms .....	5
CHAPTER TWO: REVIEW OF THE LITERATURE	
Introduction .....	7
Impact of Technology Advancement .....	7
Technical Support .....	9
Training .....	11
Instructional Design and Development .....	12
Design Theory .....	13
Development Models .....	14
Creating Web-Based Resources .....	15
Human Computer Interaction .....	16
Electronic Performance Support Systems .....	18
Summary .....	19
CHAPTER THREE: PROJECT DESIGN PROCESSES	
Introduction .....	21

Analysis .....	21
Design .....	24
Development .....	31
Implementation .....	33
Evaluation .....	35
Summary .....	38
CHAPTER FOUR: CONCLUSIONS AND RECOMMENDATIONS	
Introduction .....	39
Conclusions .....	39
Recommendations .....	40
Summary .....	41
APPENDIX A: CD OF PROJECT .....	42
APPENDIX B: LETTER REQUESTING SUPPORT AND LETTER OF SUPPORT .....	44
APPENDIX C: SURVEY AND CHARTS .....	47
APPENDIX D: USABILITY STUDY .....	60
REFERENCES .....	63

## LIST OF FIGURES

Figure 1. Storyboard of Home Page .....	27
Figure 2. Storyboard of Sub Page .....	28
Figure 3. Storyboard for Child of Sub Page .....	30

## CHAPTER ONE

### BACKGROUND

#### Introduction

This chapter presents an overview of the project. The contexts of the problem are discussed followed by the purpose, significance of the project, and assumptions. Next, the limitations and delimitations that apply to the project are reviewed. Finally, definitions of terms are presented.

#### Statement of the Problem

Technology is in our homes, schools, and the workplace to stay. Campuses are trying many ways to train their faculty and staff in the efficient use of technology. Kingsborough Community College in Brooklyn, New York is a campus that faces this dilemma ("Community College Week," 2005). They have created a state of the art training center to get faculty acclimated to new and emerging instructional technology ("Community College Week"). At the Imperial Valley campus of San Diego State University, faculty used Title V funding to retrain into a ". . . technology-literate and highly educated workforce" (Marx, 2005, p. 21). Marx found it difficult to get faculty interested in taking the training and retaining

those faculty that were interested in the beginning. However, the training program has been modified over time to meet the needs of the faculty.

Industry faces some of the same difficulties as education when it comes to training their workforce. According to the article "Training the Orkin Man" by Orkin Inc. (2003), Orkin faced great difficulties in training a large workforce throughout Canada and the United States. Orkin Inc. redesigned its training system to deliver instruction as needed and through various methods. This redesign improved employee satisfaction and learning.

The San Bernardino Community College District faces many of the same issues. The technical support staff at San Bernardino Community College District faces the difficult task of supporting students, faculty, staff, and administrators in daily instructional and operational tasks. Professional Development works to provide training to faculty, staff, and administrators. The District Helpdesk supports the users of the web sites, database resources, and administrative computers. Network Specialists support student labs and faculty computers. Audiovisual provides equipment resources for classrooms and special events. All of these groups collect information and develop guidelines and instructional



resources. However there is no place for this information to come together for access by all constituents.

### Purpose of the Project

With the lack of one support system it has become necessary to create one place for support entities to share their expertise with one another and with the campus community. This project creates a web presence that all of these groups can contribute to. Support staff can then refer users to the resource when guidance, assistance, or instruction is needed. This system starts out small and creates a skeletal system that will allow for continued development after the project is over.

### Significance of the Project

This project is important to SBCCD because it brings together support groups to develop and maintain a web space that will help develop skills of the employees. Many people want to be self sufficient in their use of technology; however they lack the experience, self-confidence, and critical thinking skills to do so. This project sets the stage for this transference to happen.

The web site that was created and the information gathered during this project serves as an example to other institutions that struggle with supporting technology and

training of faculty and staff. Often, budget restraints and lack of sufficient support personnel put technical support and training in a reactive mode. This type of system creates a proactive structure. The suggested changes are not difficult to implement. However, it does require a change in culture and that can be very difficult. Technology in itself is changing the culture of community colleges. That serves as an example that culture changes do happen.

#### Limitations

During the development of the project, a number of limitations were noted. These limitations are as follows:

1. The task of bringing together all the resources in this project would be too extensive. Therefore, it will only be developed in a limited form. Only sample tutorials and guidelines for future additions to the resource will be created.
2. All of the support entities work separately from one another and some will never work together without administrative intervention.

3. Not all phases of implementation would be completed in this project because of breadth of implementation.

#### Definition of Terms

The following terms are defined as they apply to the project.

1. Technical support staff: Employees that provide technical support to other employees.
2. Professional Development: A department that provides training to employees
3. District: A group of schools that have combined to share resources.
4. Helpdesk: A location that employees can call for technical support. Responsible for dispatching desk-side support to employees as needed.
5. Network Specialists: Group of employees responsible for managing computer labs, networks, and providing desk-side support.
6. Audiovisual: A group of employees responsible for providing technology for use in the classroom.
7. Demographics: Make up of gender, employee classification, race, or other characteristic.

8. HTML: Stands for Hyper Text Markup Language. A programming language used to create web pages.

## CHAPTER TWO

### REVIEW OF THE LITERATURE

#### Introduction

Chapter Two reviews the literature related to instructional design and development, instructional methods for online instruction, and technical support through training. All of these topics are of importance to this project. First, research on technical support and training for technology will show that a web based tool can support the efforts of technicians and trainers. Second, instructional design and development will shape the way the website is created. Finally, instructional methods of online education will define how the instruction will be delivered. All of these components work together to create an instructional tool that is effective.

#### Impact of Technology Advancement

Advancements in technology have created a great need for technical support and training in our institutions. This section will review technology and the importance of technical support and training literature.

In a critical evaluation of technology in schools, Martorella (1998) writes,

. . . [c]omputers have occupied a prominent place in our schools and homes. They are for example, the only major technology that was pushed from the home and community into the schools. The growing massive infusion of computers and the resources they require, however, has created some newly emerging issues the need urgent attention . . . the following categories: ethical issues, freedom of speech concerns, issues related to the Internet, personnel shortages, and the growing number of those who are critical of school policies and practices concerning computers in schools. (p. 6)

Martorella is calling for an evaluation of how technology is used and supported in our schools.

Bailey (1997, p. 57) provides a list of ". . . top 10 concepts for technology integration in the 21<sup>st</sup> century." Bailey list those as change, technology planning, ethics, teaching and learning, safety and security, curriculum, staff development, infrastructure, technical support, and technology leadership. Bailey also suggests that technology leaders are not experts in technology and most will admit to the fact that mastery of technology is a ".

. . lifelong journey" (p. 57). Bailey further exerts that no one can expect to tackle all ten issues. Leaders must pick the items that appear most important to their institutions and be aware of all the issues (Bailey, 1997).

Minero and Brothers' 1999 article "10 lessons from the technology trenches" is similar to the Bailey article only in that 10 items are listed. They describe ten lessons learned through the implementation of technology. They emphasize three important facts.

Minero and Brothers writes, "[t]echnology training is only effective if teachers have an immediate need and opportunity to apply their new skills" (p. 7). Teachers have difficulty moving from well known effective practices to new ones. They need support to carry out new practices effectively. Education can not afford the technical support that business can. Alternative methods for technical support must be explored. Faculty, staff and students can all be used to bolster technical support.

#### Technical Support

There seems to be a lack of literature for technical support in education. Holzberg (2004) explores the pros and cons of in-house versus outsourcing technical support. According to Holzberg, in-house support does a poor job of

documenting service calls where outside technical support does not know the details of how technology is deployed or configured. Holzberg offers a mix of outsourcing helpdesk and keeping staff to do the hands on work. This provides documentation of issues while supporting technology with technicians that have intimate experience of the design and implementation of hardware and software.

Technical support can also be done as a web based service. McCollum (1999) explores a service called Question-Exchange. The service matches experts with those needing help. The users bid on answers to questions. Experts are certified by the web site. Question-exchange would provide an area within the site for experts and users from a particular college to ask and answer technical questions. This eliminates the fee for answer method as all questions and answers come from within the same organization. This would also build the technical knowledge base of the site. Both of the above technical support strategies present alternatives to the issue that technical support in educational institutions is difficult to provide.

Technical support is not enough; training is also important. Salpeter (2004, p. 30) writes, "[f]or years experts have been warning that investments in educational



technology will only pay off if an adequate portion of the budget is devoted to professional development and technical support." Salpeter also conjectures that teachers without technical support and training attempt to use the technology. But eventually most give up and return to old methods without the technology, or only use the technology in a limited fashion. Also, many institutions feel that technical support and training are not affordable.

### Training

In contrast to literature on technical support literature on training in education is abundant, making it difficult to narrow down relevant information. Training also known as professional or staff development is a high priority in education. Educators need to be lifelong learners if they are to provide an education that is timely. It is important that companies use the knowledge of their more experienced employees as an asset (Bunis, 2002). Web based learning permits the learner to access that store of knowledge. Bunis also asserts that professional development should be ". . . delivered just in time, as we need it, to our desktops, laptops, PDAs, and even cell phones" (p. 30). According to Redmon and Salopek (2000) just-in-time learning requires support of

the organization's culture, and it works well if information needs to be delivered in small components. Redmon and Salopek also suggest that using electronic training allows the institution to capture classroom trainer's knowledge in case they move on or classroom training is phased out.

Shriver and Giles (1999) make the argument that companies that already have an established network and computer systems can use that system to deliver training. Significant savings could be made through the reduction of instructor led training, travel time, classroom costs, training becomes available to all that needed, and loss of work time for the trainee is reduced (Shriver & Giles, 1999).

#### Instructional Design and Development

Design and learning theories have a natural link and shape the way materials are developed for instruction. For instance, according to Ertmer and Newby (1993), instructional design theory is used to link learning theories with development models. There are numerous design theories and models (Merrill 2002). Merrill in the article "First principles of instruction" explores ". . . various design theories and models . . ." (p 43) to find

similarities and concludes that they all have similar "first principles" (p. 57). This section will review design theories and ISD models.

### Design Theory

According to Seels and Glasgow, (1990) design is based on the three domains of learning: cognitive, affective, and psychomotor. Each of these domains has a taxonomy that defines the types of learning that take place in them (Seels & Glasgow). Although there are many cognitive taxonomies, Bloom's taxonomy is the best known (Seels & Glasgow). Cognitive taxonomies are used to describe behaviors. Affective taxonomies deal with internalization of information learned. Psychomotor domains are arranged around the amount of coordination required to perform specific task.

Wildman writes, that the ". . . real progress [in instructional design] will come from those who understand human learning theory and apply this understanding to the decision-making process of instructional design-not from designers per se" (1981, p. 14). In contrast, Wilson writes, that if designers do not follow instructional design models to the letter then ". . . the precise role of traditional ID theory is left to question" (1997, p. 8).

## Development Models

There are many different developmental models known as ISD. ISD or the systems approach is what people refer to as instructional technology (Gordon & Zemke, 2000). Gordon and Zemke write, at its basics "... ISD is the ADDIE model of instructional design (for Assess, Design, Develop, Instruct, [and] Evaluate)" (2000, p. 42).

A more contemporary view of instruction is that it is a systematic process in which every component (i.e., teacher, learners, materials, and learning environment) is crucial to successful learning. This perspective is usually referred to as the systems point of view, and advocates of this position typically use the systems approach to design instruction. (Dick, 2000, p. 2)

In contrast, Gordon and Zemke (2000) discuss four criticisms of ISD. First, "... ISD approach is too slow and cumbersome for the times" (p. 45). Second, ISD is an attempt to make instructional technology a science that will "... produce predictable reliable results in learning" (p. 48). Third, when ISD is used as it is designed it creates poor results. Fourth, "[i]t clings to

the wrong world view" (p. 52). Systems are created that do not adapt to learners needs and skill level.

De Lisle (1997, p. 3-4) cites Main 1993 as providing the following guide to ADDIE:

Analysis . . . [is used] to determine training needs and produce a needs assessment document. . . . Design . . . [is used] to develop a blueprint of how the finished product will look, and to produce a storyboard and flowchart of the whole structure of the finished product. . . . Development . . . involves the programmers, graphic artists, writers, and subject matter experts filling out the specifications in the blueprint. . . . Implementation and Evaluation [are] [t]he final two phases [they] involve delivery of the completed programme [sic] to the learners, and evaluation of whether the goals as set out in the needs assessment are met.

#### Creating Web-Based Resources

"Online learning is a hybrid between the traditional classroom and the DE [distance education] experience" (Toporski, 2004, p. 1). In keeping with the idea that all

components are connected with learning theory; Driscoll writes, cognitive skills are the easiest to develop online; while psychomotor and attitudinal skills take a lot of time and money (1998). The discipline of human computer interaction (HCI) has changed the way resources are created (McCracken & Wolfe, 2004).

### Human Computer Interaction

There are six goals of human computer interaction. McCracken and Wolfe (2004) cite Eason 1985, those goals ". . . are to develop and improve the safety, utility, effectiveness, efficiency, usability, [and] appeal of systems that include computers" (p. 4). Chalmers (2003) asserts that design theories by themselves do not make a good user interface; learning theories must be considered when embarking on interface design. Schema building, cognitive load, and retention theories all have to be considered (Chalmers).

Chalmers writes that users can easily become lost within the user interface. Further, content and hyperlinks are a problem for users that have limited experience with reading and navigating the computer screen. Chalmers cites Szabo and Kanukathat 1998, ". . . that viewing a good screen design enables automatic processing, whereas

viewing poor screen designs encourages a manual and, therefore, less efficient processing" (p. 600).

McCracken and Wolfe (2004) recommend a "user-centered development methodology" (p. 5). This methodology involves eight stages.

- Stage one: needs analysis is used to identify the type and use for the system you want to create.
- Stage two: user and task analysis develops tasks that meet the user's identified skill level, needs, and desires.
- Stage three: functional analysis determines the web site functions that are needed for ease of use and task completion.
- Stage four: requirements analysis outlines proper specifications for development of the system.
- Stage five: setting usability specifications is used to specify website organization and how it relates to the user's preferred methods of interaction and ease of use.
- Stage six: design lays out the overall organization of content as defined in earlier

stages. Assuring that clear visual cues are created and page design flows persistently from one page to another.

- Stage seven: prototyping is used to develop a limited version of the resource either on paper or in electronic form. This allows for identification of problems up front.
- Stage eight: evaluation is used to review the prototype for revision or use in the final product. User and/or expert evaluation can take place.

#### Electronic Performance Support Systems

Electronic performance support systems (EPSS) are electronic database of support and training aids that provide only the material needed when it is needed (Sherry & Wilson, 1996). They saw “. . . technology and information tools becom[ing] the vehicles which facilitate training, communication, information access, troubleshooting and performance support” (p. 25). Van Schaik, Pearson, and Barker (2002) in their article “Designing electronic performance support systems to facilitate learning” identify six types of support aids in a table (p. 290):



1. Simple performance support tools (i.e. telephone, overhead projector, notepad, pencil)
2. Electronic tools (i.e. PowerPoint, Voice notepad)
3. Integrated performance support tools (i.e. Microsoft Office, internet search tools)
4. Personal support tools (i.e. mobile phone, personal digital assistant, laptop computer)
5. Organizational support tools (i.e. departmental intranets, databases, decision support)
6. Global performance support tools (i.e. the Internet and private global networks)

Chang (2004, p. 344) writing "[w]ith the increasing availability of information technology, many business organizations are turning to EPSS for information access, decision analysis, problem-solving, job advice, online reference and learning support for employees."

### Summary

As evidenced in the literature technology in the classroom and workplace is ever changing. Technical support and training in the educational institution is

difficult to support monetarily with limited technical support staff. New methods need to be deployed to bolster the support staff. By implementing sound design and development methods through use of the ADDIE Model an effective resource can be developed. Online resources have created a new way to leverage technicians and trainers skills. This allows for the continued use and reuse of developed resources even though the person has left or busy with other duties. Through the science of human computer interaction and its user-centered approach the developed resources will be efficient and useful.

## CHAPTER THREE

### PROJECT DESIGN PROCESSES

#### Introduction

Technical support and training do not always come together as one process. This design addresses both issues with one product. The ADDIE model for instructional design is used to complete this project. The processes used are documented here.

#### Analysis

To complete a needs analysis surveys were sent to all employees at San Bernardino Community College District (SBCCD). SBCCD is made up of two campuses San Bernardino Valley College (SBVC) and Crafton Hills College (CHC). SBCCD also has a Professional Development Center (PDC) for outside corporate training. Surveys were sent by email to 997 employees in the global address book. One-hundred and eight responses were received for a return rate of 10.8%. Twenty-five questions were asked. The original survey and charts of the data are available in Appendix C.

The first five questions on the survey dealt with demographics; employment classification (classified, faculty, administrator, or contractor), hourly classification (full-time or part-time), gender, job

title, location, and age (used to eliminate responses from minors). A large majority of the respondents came from the SBVC campus.

The next eight questions were used to ascertain the user's comfort level with access to the Internet, Network resources, and their perceived usability of provided resources. If the product is going to be Internet or network based, it is important that the user can and will access the resource. If the user does not access current resources, that needs to be addressed in any new resource developed. Ninety of the respondents use the Internet on a regular basis. Fifty-five use it more than five hours a week. Campus Central is the District's web portal for employees and students.

Seven percent of the respondents did not know what Campus Central is. Of those that knew what Campus Central is, 92 percent use the resource regularly and 74 percent found it easy to use. Those that use Campus Central use it for a variety of functions. As depicted in the chart, "What do you access on Campus Central?" (Appendix C).

The next six questions addressed technical support. It was important to find out how users perceive the current technical support and ascertain whether or not they would accept new methods for technical support.

Eighty-nine percent of the respondents were happy with the amount of technical support they received and 98 percent knew who to contact for technical support. When asked what types of support they preferred, 47 liked phone instructions, 43 liked phone support with remote control, 16 wanted someone at their desk working on their computer, 36 wanted someone at their desk instructing them how to perform the task, and 24 said they would like instruction on a web-site they can perform themselves.

The next five questions asked about training. The questions were used similarly to the technical support questions. Sixty-eight percent were happy with the amount of training they received. This was followed by 69 percent that knew who to contact for training. This is an interesting correlation. Effort should be made to make employees aware of who to contact for training. When asked if they would use easily accessible training, 95 percent of the respondents said they would use those services. Respondents were asked to choose their preferred methods of training. Most respondents chose more than one method. Fifty-two wanted classroom instruction, forty-four wanted a website with simple instructions, thirty-nine desk-side training, nineteen traveling to conferences, and thirteen prefer email delivery. The final question on training was

open ended. This question asked what the respondent felt was missing from the training they receive. Thirty people answered this question. The most common responses were training, funding for training, training on preferred topics, convenient training, more training, virtual training, training on the use of district web resources, and training on job duties.

The last question in the survey was open ended. It asked users to provide any other information they felt the surveyor would need. This was added to provide a voice to the surveyed. This would provide comfort to the surveyed and give them the feeling that their voice was heard. Most of the responses were irrelevant to this project.

In summary the survey provided insight into the employees at SBCCD and whether or not the idea of a website to provide technical support and training would be of value to the district. The data shows that the employees would use such a resource and it would be beneficial to the technical and training staff of SBCCD to develop and support such an undertaking.

### Design

The design process started by laying out all of the variables involved. First, the tool will assist in

training and technical support for SBCCD and all of its entities (SBVC, CHC, and PDC). Second, SBCCD already has web sites for itself and each of its entities. Finally, the following questions are answered. What will the tool look like, how will it be used, and who is going to use it? How do we insure that the tool will continue to be developed, supported and used in the future?

The tool needs to be easy to use. It should also address the needs of different learners, and different levels of technical support. Some users will just want simple straight forward solutions that get them to the end result quickly. Others will want more in depth instructions that will provide a learning experience that they can use in the future. Both of these situations will be addressed.

The design created guidelines for future development of two components. The first is a tutorial that uses audio, video, and on screen text to demonstrate simple computer tasks. The second component consists of simple instructions to complete the same task. Sample tutorials and instructions were created to test future design, development, and implementation. The goal of this project was not to create the actual tutorials and instructions. It was to create the process for future deployment.

A system for storing these has been created on the web site. Sorting tasks by category allows the user to easily locate the needed tutorial or instructions. Categories are divided by application type and then by application. For example Microsoft Office is a sub page. Under the MS Office page choices are available for Word, Access, Excel, and so on. The tutorials present short topics that are aimed at completing one task. For example, printing on both sides of the page, using a flash drive for the first time, or installing a program on a computer. It is important that the web interface is easy for creators, users, and referrers to access. Storyboards were created to assist in identifying important components of the pages.



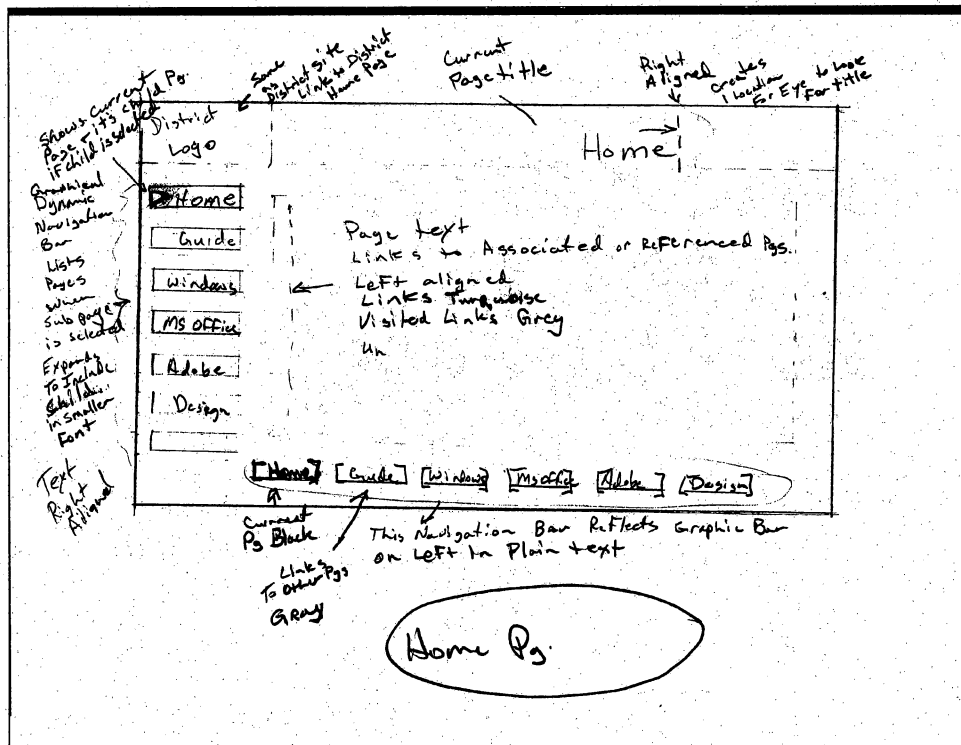


Figure 1: Storyboard of Home Page

In figure 1 above the home page is drafted out. This page sets the standards for the entire web site. The top left corner contains the SBCCD logo. This logo links page to the district's home page. To the right of the logo the page title sits right aligned a short distance from the right side of the page. This alignment allows for consistent placement of page titles. A graphical navigation bar occupies the left side of the page. The graphical bar has a triangle on the left to indicate the current page. Upon rollover of mouse pointer font size

increases and the triangle at the left appears. Text on this bar is right aligned. A text navigation bar occupies the bottom of the page. The current page is in black and sub pages appear in gray. Page text appears above the lower navigation bar left aligned. All lower level pages will use the same basic layout of this page.

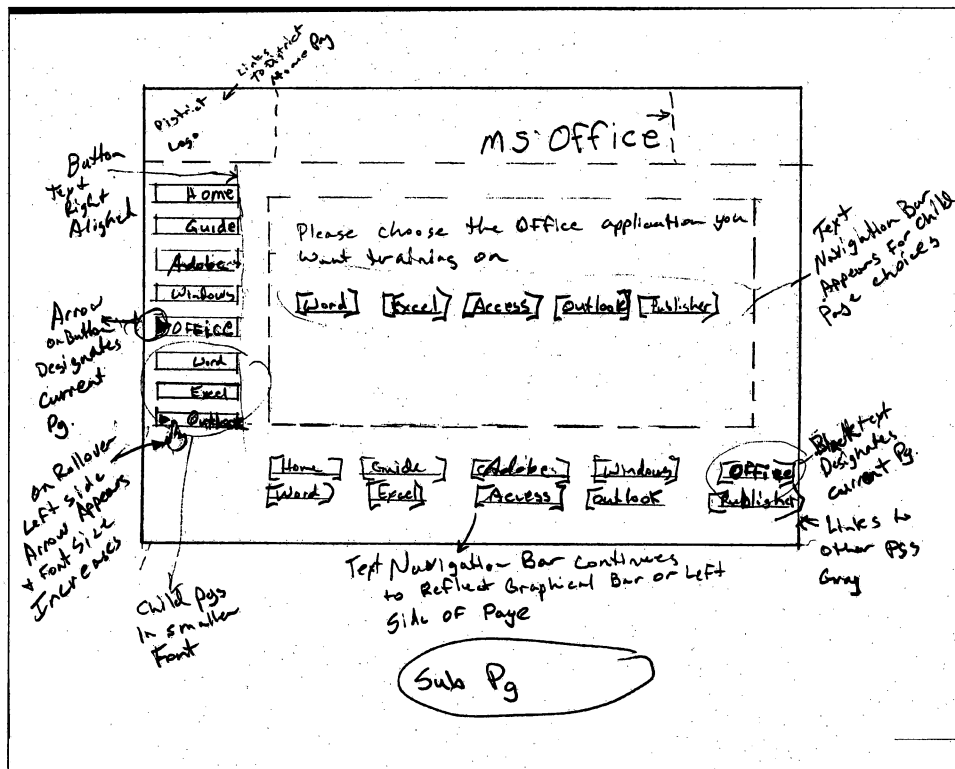


Figure 2: Storyboard of Sub Page

Figure 2 above displays the layout of all pages directly beneath the home page. Logo, page title,

graphical navigation bar, text location, and text navigation bars remain consistent with a few modifications. Graphical navigation bar expands to show links for home page, sub pages and children to the current sub page. Triangle at left designates current sub page. Child pages of current sub page appear in a smaller font. As in the home page, upon rollover of the mouse the font size increases and the triangle appears at the left side of the button. The text navigation bar changes to reflect information shown in the graphical navigation bar. The text window shows a text navigation bar with choices for the child pages. Text provides instructions for use of this page.

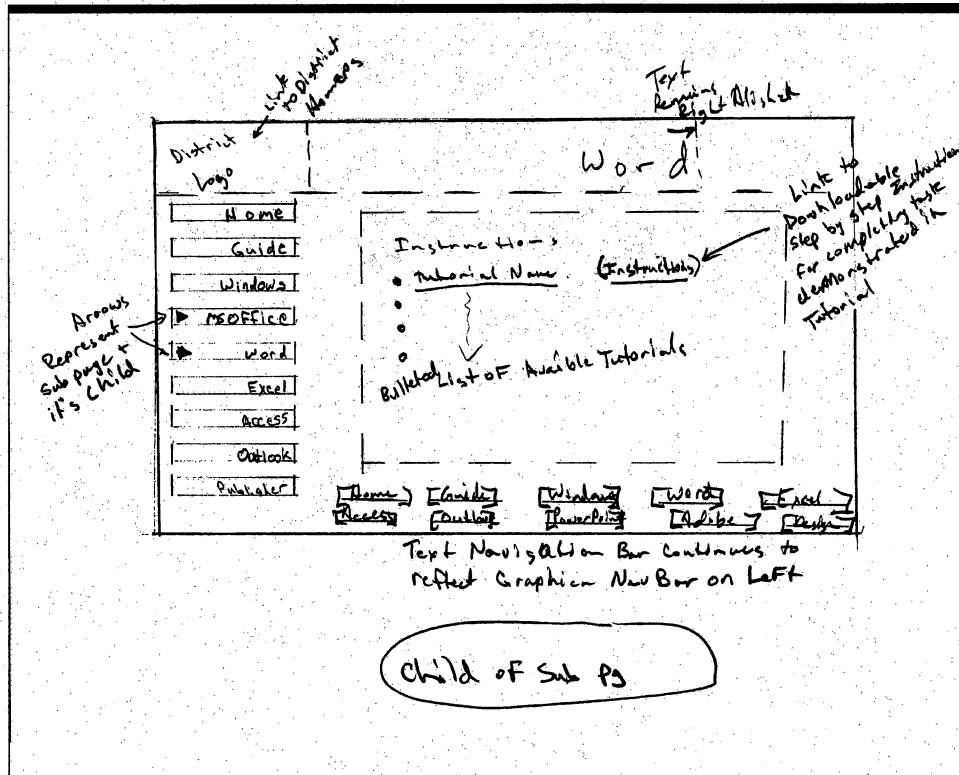


Figure 3: Storyboard for Child of Sub Page

Figure 3 above provides layout for children of sub pages. The children or child designation has been chosen to eliminate confusion when writing about sub pages and sub-sub pages. General page layout also remains the same here. The graphical navigation bar has triangles to designate the sub page and it's currently selected child. Instructions will appear in the text area along with links to the tutorial and links to their associated downloadable instructions. These instructions provide step by step

information for completing the task demonstrated in the tutorial.

Since there is a need to support the entire district, the support tool is placed on the district web site. Other sites can link to the tools location. This will give the tool greater support and availability.

### Development

The two components, tutorials and instructions, are developed along with a web site to contain them. The web site created in association with this project can be found at <http://www.sbccd.org/tutorials>. The website is hosted by SBCCD. There are two products on the market that will easily create screen capture tutorials with audio, video and text capabilities Camtasia and Captivate. For this project Captivate was used.

The tutorials are created using a computer with the Captivate software installed. The author of the tutorial may or may not have a script for the tutorial they want to create. However, the use of a script is recommended. Headphones and a microphone are required if the author wishes to record voice input. Voice input can be recorded as the tutorial is created or it can be added afterwards. Tutorials for the use of Camtasia came with the product

purchased by SBCCD. Those tutorials have been placed on the website for reference by users.

The step-by-step instructions are created in Adobe Acrobat. This allows for greater document portability and security. Adobe Acrobat is installed on all computers at SBCCD and files created in Acrobat can be protected from change. To make the instructions easy to follow conventions needed to be set. The following conventions were set to eliminate future confusion.

Commands = **Bold**

Key Strokes = **[Square Brackets + Bold]**

File Paths = Separated by \

Command Paths = separated by >

Variables preceded by /

Mouse Actions = Parenthesis (Point), (Click),  
(Double-click), (right-click), (Drag),  
(Right-drag)

File Names and Program names = Italics

Buttons = Mouse action with a Command (Click)

### **Start**

Other conventions may be added in the future as needed. Some of these are conventions commonly used when writing out computer instructions for users. This list was added to the web site for reference by all users.

Once the tutorials and instructions were developed, they were added to the web site. Net Objects Fusion (NOF) 7.0 and Dreamweaver MX are used for web site development. NOF is used to create the web page structure and style. The built-in style feature of NOF allows the author to create a website that is easy to navigate and meets the needs of HCI. Dreamweaver was used to make minor adjustments to the HTML code. These tools are not the only tools that could have been used by the author or others. There are several different web authoring tools available on the market today. They are only the ones preferred by the author.

### Implementation

Several phases of implementation are necessary. Phase one, the website has been deployed in a limited fashion. The website is in place on the district website. It is available to the public as long as they have the address. Presentations have been given to the District Technology and the SBVC Campus Technology Committees. This deployment was used to demonstrate to SBCCD the value of such a web site.

During phase two, technical and training staff has been exposed to the tool. This phase has taken place there

appears to be a great interest. However there was also a concern about having the time to design and develop content with their already extremely busy day. This appears to be a major hurdle in getting the project up and running. For the next phase to be realized, motivators will need to be implemented. For example, supervisors will need to ask employees to make time to develop content. Also demonstration of the value to the developers and users may be a motivator.

During phase three, technical and training staff will learn to create resources and add them to the system. This phase awaits completion of phase two. The information for learning the tools necessary for creating a tutorial is available on the web site. Workshops can be held for hands on training. However if technical and training employees use the system they will learn how easy it is to develop and content. Through this process employees will realize the benefits this system presents.

During phase four, technical and training staff refers employees to the site for training. This will only happen after staff has added content relevant to their area to the site. After having added materials to the site a sense of ownership will develop.



During phase five, employees refer other employees to the site. This is not a phase in the sense that a process involved in its implementation. After employees discover the value that this resource has to offer they will refer it to friends. This process will happen over time much like when a person discovers a small restaurant they like and they tell a friend, then that person tells a friend, and so on.

### Evaluation

Evaluation will be conducted in two parts. Formative evaluation was conducted in the form of a usability study. A summative evaluation will be conducted at after full implementation of the resource.

The usability study was conducted with five users. The questions asked can be found in Appendix D. The five users used a variety of operating systems and browsers. One person used Safari browser on a Mac OS X computer. Two used a computer with Internet Explorer 7.0 on a Windows Vista operating system. Another used Netscape Navigator on a computer running Windows XP. The final tester used a machine with Internet Explorer 6.0 running on Windows XP. The web site appearance and function was the same on all browsers. The factory made tutorials for Captivate did not

run on the Apple computer because they were designed to run in Windows. The web site was updated to warn the user of this incompatibility.

Users were able to find all requested web pages with relative ease. The one page that any user had difficulty finding was the Design page. Only one user interviewed had extreme difficulty finding the page. The users were asked to find information about how to add their own tutorial to the web site. This may have been the result of the question asked. The user that had difficulty suggested renaming or relocating the design link.

The testers were asked several questions about overall appearance, fonts, formatting, navigation, and suggested changes. The following information was gleaned from this process. All users liked the appearance. One wanted some eye catching graphics on the home page. Fonts were not a big issue. It was suggested by a user to increase the font size, but keep the page small enough so they would not have to scroll. The same user suggested using more bulleted text when possible. They found bulleted text easier to read, and to remove some unneeded text from the home page. The web site already had several pages with bulleted text. Other pages were reviewed and changed where possible. The home page was reviewed and

edited. It was noted that there was some inconsistencies of font sizes between pages. Those pages have been corrected. Overall the users found the site easy to navigate. They liked the multiple locations for links on the left, bottom, and in the text. One user would prefer to have a menu at the top instead of on the left side. This change was not made. The other users had no issues with the menu location and this appears to be a user preference.

As the observer the author noticed that it took a little longer to get back to the menus of the website after running a tutorial. There is a note within the website to let users know to click the back button to return to the resource. One user had remembered this, several others realized that the only way to return was to use the browsers back button, and one accidentally closed the browser window. The website was altered to open up the tutorials in a new window. This should eliminate some confusion.

Summative evaluation will take place once the system is fully functional. Survey of the employees should take place to ascertain usability and functionality of the end product.

Phase one presentations to the District Technology and SBVC Campus Technology Committees were received with great enthusiasm and support. With the completion of this phase the project has been turned over to the District for possible further development and deployment.

#### Summary

The analysis, design, and development of this resource took place as part of this project. Much work remains to complete this project in the implementation and evaluation components of the ADDIE model. Those components remaining require resources not available to the author of this project. The project, if undertaken by SBCCD, will increase the amount of technical support and training available to the employees. Although this is a non-traditional method of technical support and training, data collected suggests that the employees of SBCCD are willing to try new means to self support and train.

## CHAPTER FOUR

### CONCLUSIONS AND RECOMMENDATIONS

#### Introduction

Technology is changing the way we work, learn, and teach. It is required that employees in most workplaces use this ever-changing technology on a day to day basis. It is important that new technologies are used for everyone's benefit. This chapter is a presentation of the conclusions and recommendations gleaned as a result of completing the project.

#### Conclusions

The conclusions extracted from the project follows. SBCCD has issues with providing adequate technical support and training. There is a need to diversify methods for providing this support and training. The project created a portal that provides useful technical information and training. To the employees of SBCCD that can be expanded on to meet future needs.

The development of a web site that provides technical support and training would benefit SBCCD's employees. SBCCD management needs to support development of such a web site. SBCCD management needs to encourage technical support and training staff to build a web resource for

support and training. SBCCD management needs to encourage employees to use such a resource when completed. Employees need training in the use of current web resources.

Employees need information regarding the technical support and training is available to them currently.

SBCCD is not the only community college or employer facing the issue of inadequate resources to provide viable training and technical support. This project sets an example for what others can do to fill in this gap.

#### Recommendations

The recommendations resulting from the project are as follows. This project was implemented at a multi-college district and created challenges in getting involvement from the other campus and district entities. Getting involvement from all entities before hand would be a great asset. Since this was done as a master's project, not a district project there was difficulty in getting acceptance. I would recommend this as a group project.

Future development could use a database for storage and retrieval of the developed resources. This design is limited in the number of resources that it can support because of the lack of a database. Another possibility, is building into the system the capability to email resources

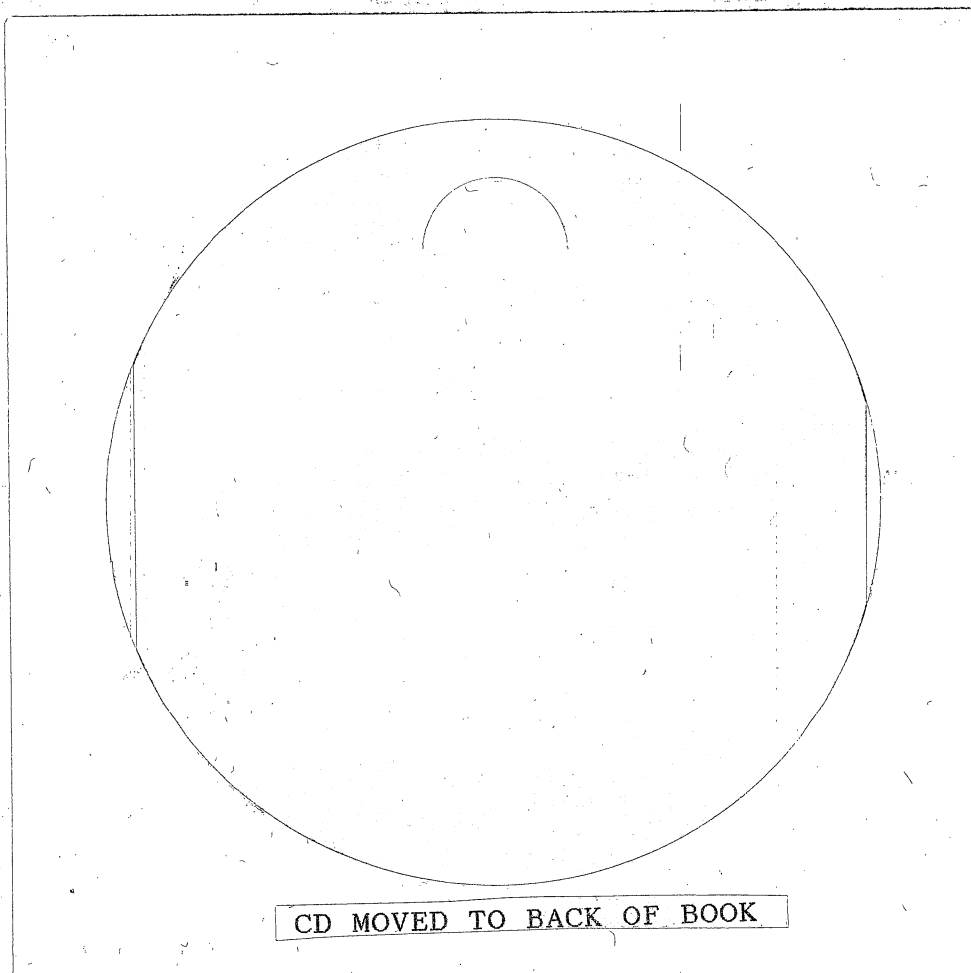
to the user. This would be very effective in organizations that have employees with limited technical skills. When a support unit identifies an individual that needs to review an online resource, that resource can then be sent directly to the users email or desktop.

### Summary

The conclusions and recommendations presented in this chapter came from the information gathered in the project. The resource that was created in this project will centralize technical support and training. That centralization will take encouragement from management and a change in culture. The decentralized nature of the organization compounds the situation making implementation difficult. Employees would use a centralized support and training system if it is easily accessible. The difficulty that remains is getting an assortment of resources into the website.

APPENDIX A  
CD OF PROJECT





APPENDIX B:  
LETTER REQUESTING SUPPORT AND  
LETTER OF SUPPORT

January 30, 2005

Chancellor Averill Ed.D  
San Bernardino Community College District  
114 South Del Rosa Drive  
San Bernardino, California 92408

Dear Sir:

SUBJECT: LETTER OF SUPPORT MASTERS PROJECT

I am working on my Masters Project in Instructional Technology from the School of Education at California State University San Bernardino. I have chosen to design and develop a web-based training and technical support tool for the San Bernardino Community College District. I have consulted with President Whitaker and Glen Kuck and they have expressed their support in conducting this project. The Project will require the collection of data from the employees of San Bernardino Community College District. Research will be done through the use of surveys using the district email and mail systems. All information will be collected in a manner that will not identify the participants except for the fact that only employees will be asked to participate. The project will be created on district provided web space and should serve as a valuable resource that can be added to and modified once my project is complete. I believe that this is an excellent opportunity for the District and my education.

To proceed to the next step in completing this project, I am asking for a letter of support from you. Please contact me if clarification is needed.

Sincerely,

Rick Hrdlicka  
Department Network Specialist  
San Bernardino Valley College

rh

SCIENCE DIVISION  
701 SOUTH MOUNT VERNON  
SAN BERNARDINO, CALIFORNIA 92410



SAN BERNARDINO  
COMMUNITY  
COLLEGE  
DISTRICT

114 South Del Rosa Drive • San Bernardino, CA 92408 • Phone (909) 382-4000

Donald F. Averill, Ed.D., Chancellor

February 2, 2005

Mr. Rick Hrdlicka, Department Network Specialist  
San Bernardino Valley College  
701 South Mount Vernon  
San Bernardino, CA 92410

Re: Letter of Support for Master's Project

Dear Mr. Hrdlicka:

The San Bernardino Community College District would be happy to support you in your project of designing and developing a web-based training tool. It appears, based on your discussion with Denise Whittaker and Glen Kuck that this project will not only benefit you in completion of your Master's but also be a great benefit to the San Bernardino Community College District.

Sincerely,

A handwritten signature in cursive script, appearing to read 'Donald F. Averill'.

Donald F. Averill, Ed.D.  
Chancellor

DFA/jfb

APPENDIX C  
SURVEY AND CHARTS

Hello,

To complete my Masters Degree, in Instructional Technology at Cal State University San Bernardino, I have chosen to do some research and development for the San Bernardino Community College District. I have received approval from Chancellor Averill to collect this information. To this end I need your assistance. Please print, fill out, and return this completely anonymous survey to me (Rick Hrdlicka, Dept. Network Specialist, Science Division, SBVC).

**Please do not put your name on this document.**

1. Choose the item that best describes your employment classification:  
☐ Classified Staff      ☐ Faculty      ☐ Administrator      ☐ Contractor
2. Choose the item that best describes your hourly classification:  
☐ Part-time      ☐ Full-time
3. Location  
☐ Crafton      ☐ Valley      ☐ District (includes all other locations)
4. Gender  
☐ Male      ☐ Female
5. Age  
☐ Under 18      ☐ 18-25      ☐ 26-35      ☐ 36-45      ☐ 46-55      ☐ 56 and over
6. Do you use the Internet on a regular basis?  
☐ Yes      ☐ No
7. How many hours a week do you use the Internet?  
☐ 0      ☐ less than 1      ☐ 1 to 5      ☐ More than 5
8. Do you access information on the schools network on a regular basis?  
☐ Yes      ☐ No
9. Do you know what Campus Central is?  
☐ Yes      ☐ No (if no skip to 14)
10. Do you access information from Campus Central?  
☐ Yes      ☐ No
11. Do you feel information on Campus Central is easy to access?  
☐ Yes      ☐ No
12. What do you access on Campus Central? (check all that apply)  

<input type="checkbox"/> Campus Email	<input type="checkbox"/> Email Students	<input type="checkbox"/> Keep Grades	<input type="checkbox"/> Submit Grades
<input type="checkbox"/> Student Rosters	<input type="checkbox"/> District Forms	<input type="checkbox"/> Leave Trak	<input type="checkbox"/> Manage Web Site
<input type="checkbox"/> Staff Directory	<input type="checkbox"/> Helpdesk	<input type="checkbox"/> Scholarships	<input type="checkbox"/> Calendar
<input type="checkbox"/> Other _____			
13. Is there anything that you feel is missing from Campus Central?  
\_\_\_\_\_

14. Are you happy with the amount of technical support you receive?

☐ Yes ☐ No

15. Do you know who to contact when you need technical support?

☐ Yes ☐ No

16. Who do you contact when you need Technical Support?

---

17. What type of technical support would you prefer?

- ☐ Phone support with technician telling me what to do.
- ☐ Phone support with a technician that can control my computer remotely.
- ☐ A technician at my desk doing it for me.
- ☐ A technician at my desk showing what to do.
- ☐ A web site with instructions on how to perform simple tasks on my own.

18. If you were able to access support information easily, would you try to solve problems yourself?

☐ Yes ☐ No

19. Is there anything that you feel is missing from Technical Support you receive?

---

20. Are you happy with the amount of training you receive?

☐ Yes ☐ No

21. Do you know who to contact when you need training?

☐ Yes ☐ No

22. What type of training would you prefer?

- ☐ In a Classroom.
- ☐ Travel to a Conference.
- ☐ Email delivered.
- ☐ Desk-side.
- ☐ A web site with instructions on how to perform simple tasks on my own.

23. If you were able to access training easily, would you use those services?

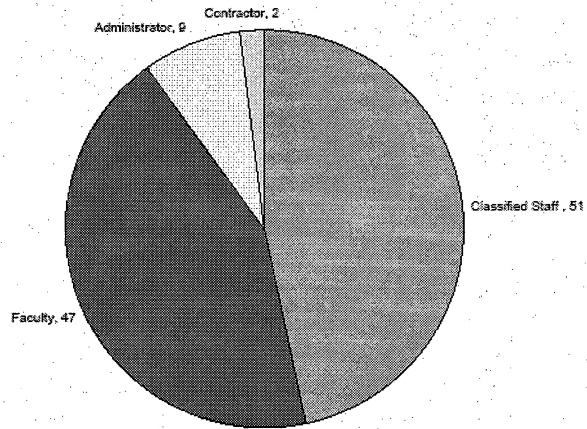
☐ Yes ☐ No

24. Is there anything that you feel is missing from the training you receive?

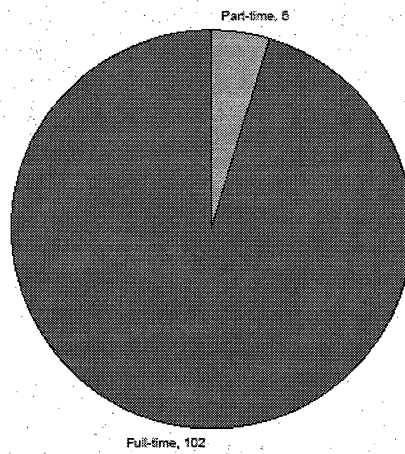
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25. Please provide any other information that you feel would assist me in my efforts.

### Employment Classifications

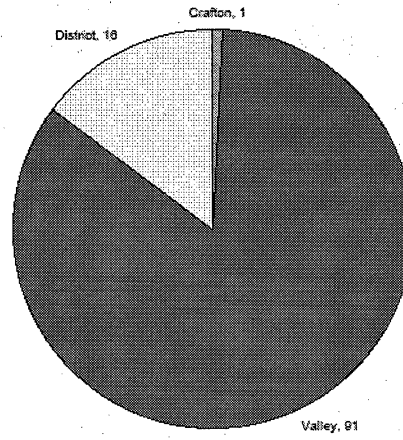


### Hourly Classification

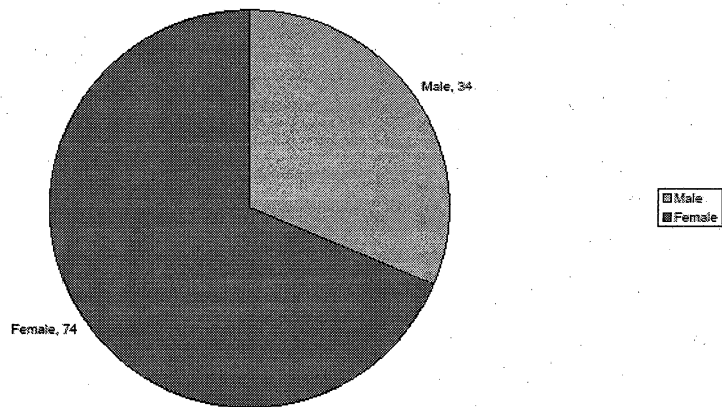




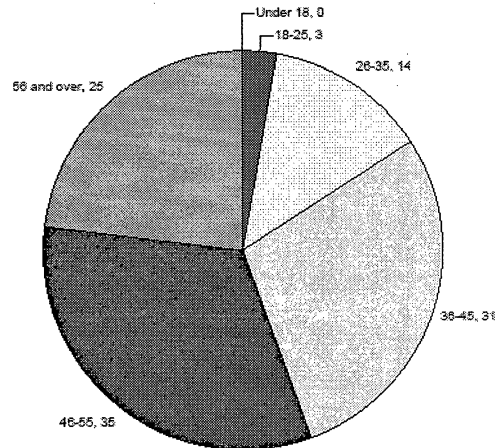
**Respondent Locations**



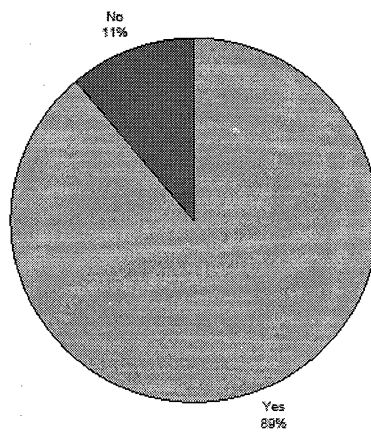
**Respondents Gender**

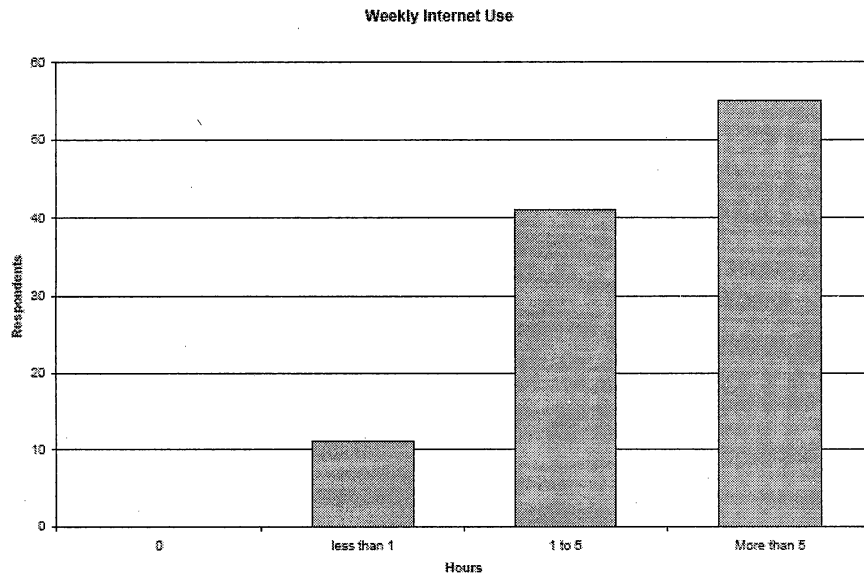


**Respondents Age**

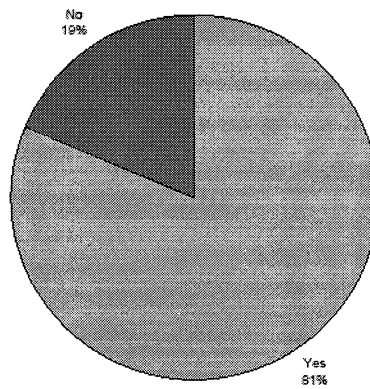


**Regular Use of Internet**

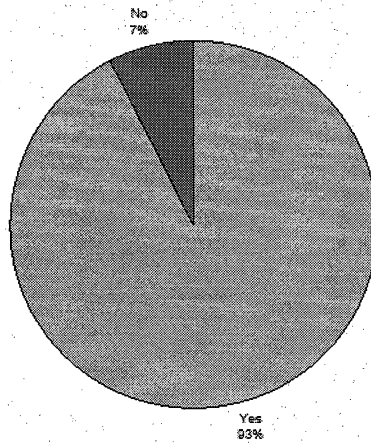




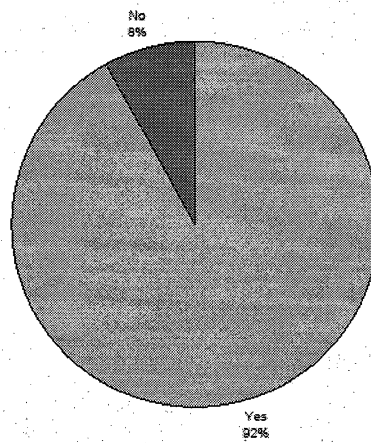
**Use Information on Network Regularly**



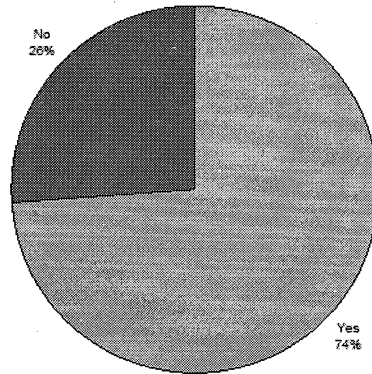
**Do You know what Campus Central is?**



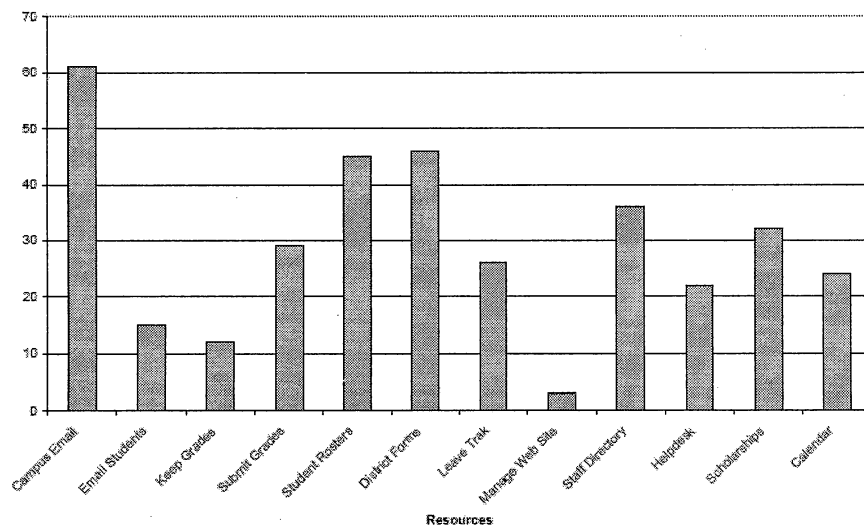
**Do You Access Resources on Campus Central**



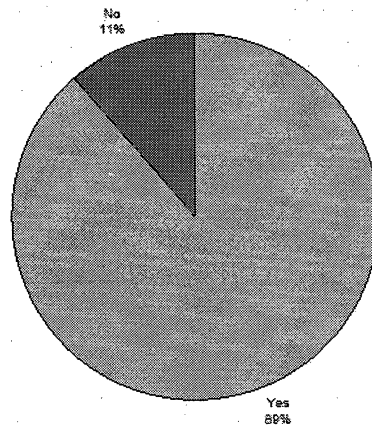
**Do You feel Information on Campus Central is Easy to Access?**



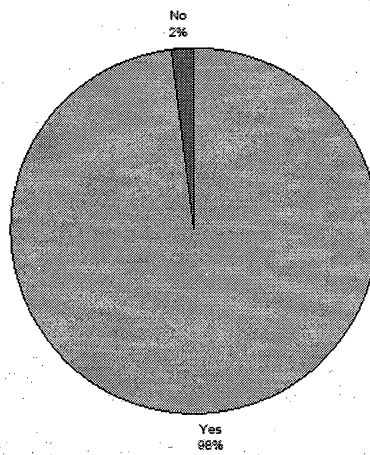
**What Do You Access on Campus Central?**



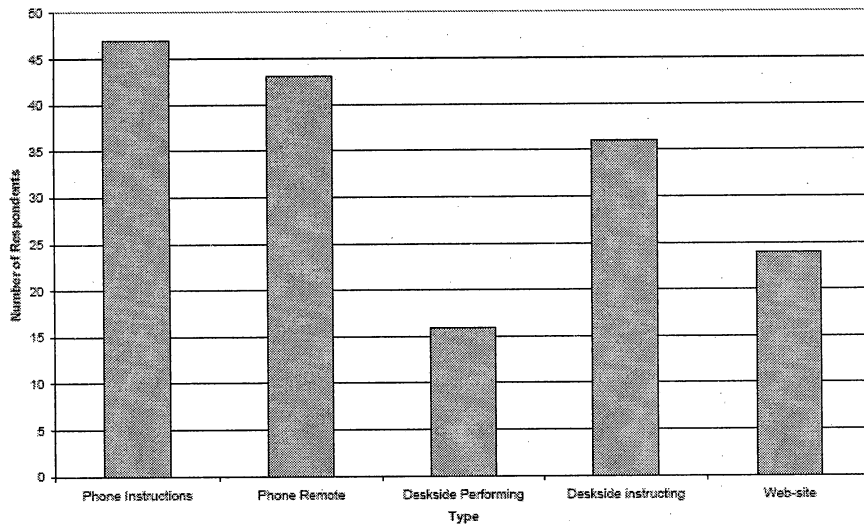
**Happy with Technical Support Received?**



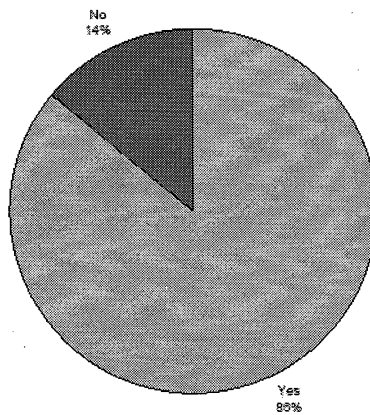
**Know Who to Contact for Technical Support?**



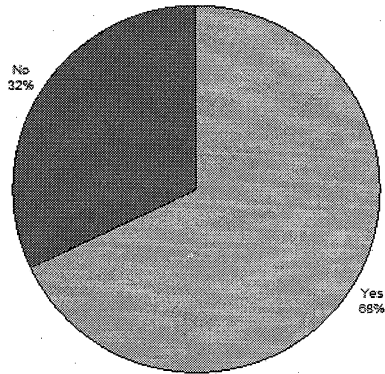
Types of Technical Support Preferred



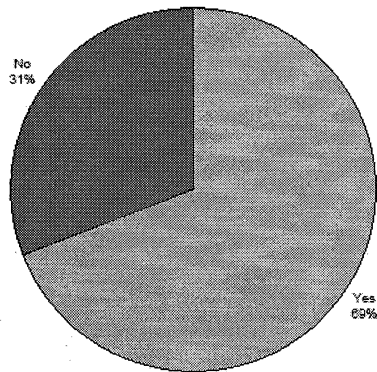
Would you try to solve problems yourself if information was easily accessible?



**Are you happy with the amount of training you receive?**

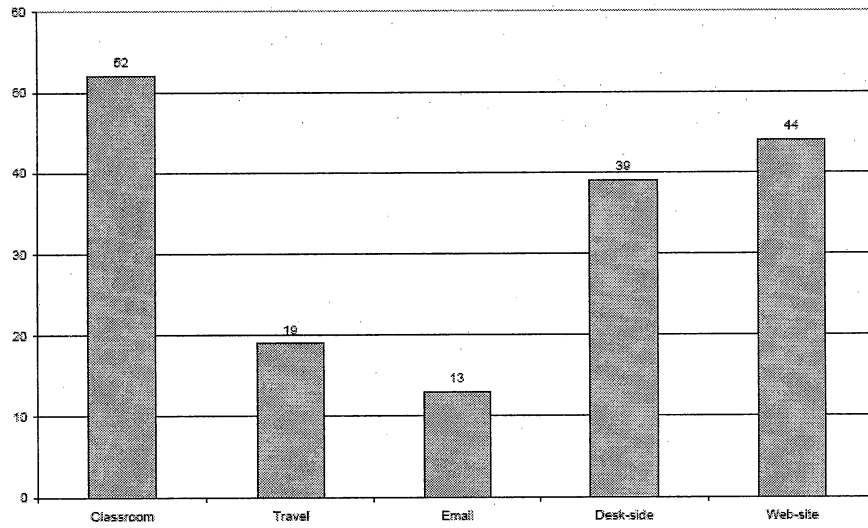


**Do you know who to contact for training?**

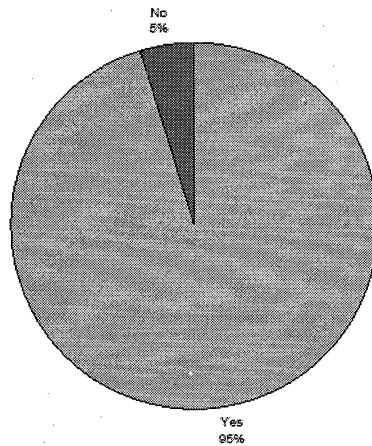




Preferred types of training



If you were able to access training easily, would you use those services?



APPENDIX D  
USABILITY STUDY

## Usability Study for [www.sbccd.org/tutorials](http://www.sbccd.org/tutorials)

Prep

Clear all histories and cookies for browser

Open browser to site to be tested

1. You want to learn more about the web site and its requirements find that page.
2. You want to add your own tutorial to the web site. Find the information on how to do so.
3. Find the information on how to format the step by step instructions.
4. Run the captivate tutorial for recording.
5. When the tutorial is done return to the websites home page.
6. Run a Windows Tutorial.
7. Return to Home Page.
8. Did you find it difficult to get back?
9. What is your overall opinion of the resource?
10. Would you suggest any changes
11. Did you find the website easy to navigate?
12. Would you suggest any changes?
13. What is your opinion of the color scheme?
14. Would you suggest any changes?

15. What is your opinion of the font sizes and style?
16. Would you suggest any changes??
17. Do you find the home page easy to understand?
18. Would you suggest any changes to the home page?

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